

invention, there is provided an electronic component mounting method as defined in the eighth aspect, wherein the pressure P1 is not smaller than 20 gf per bump, and the pressure P2 is not greater than one-half the pressure P1.

5 According to a 10th aspect of the present invention, there is provided an electronic component mounting apparatus comprising:

10 a device for sticking an anisotropic conductive layer, in which an insulating resin mixed with an inorganic filler is mixed with a conductive particle, to an electrode of a circuit board or an electronic component;

15 a device for forming a bump, without leveling, by forming a ball by an electric spark at a tip of a metal wire on an electrode of the electronic component similarly to wire bonding and forming by thermocompression-bonding this to the electrode of the board with supersonic waves by means of a capillary;

20 a device for mounting the electronic component on the electrode of the circuit board through positional alignment; and

25 a device for bonding the electronic component to the circuit board by hardening the insulating resin of the anisotropic conductive layer interposed between the electronic component and the circuit board while correcting warp of the board with a pressure force of not smaller than

20 gf per bump applied to the electronic component against the circuit board and with heating by means of the tool, so that the electrode of the electronic component is electrically connected with the electrode of the circuit board.

According to an 11th aspect of the present invention, there is provided an electronic component mounting apparatus comprising:

a device for sticking an anisotropic conductive layer, in which an insulating resin mixed with an inorganic filler is mixed with a conductive particle, to an electrode of a circuit board or an electronic component;

a device for forming a gold bump, without leveling, by forming a ball by an electric spark at a tip of a metal wire on an electrode of the electronic component similarly to wire bonding and forming by thermocompression-bonding this to the electrode of the board with supersonic waves by means of a capillary;

a device for mounting the electronic component on the electrode of the circuit board through positional alignment;

a device for metallically bonding the gold bump to the electrode of the board with supersonic waves applied while shaping the tip so as to prevent collapse of a neck portion of the gold bump with a load applied from an upper

surface of the electronic component by means of a tool; and

a device for bonding the electronic component to the circuit board by hardening the insulating resin of the anisotropic conductive layer interposed between the electronic component and the circuit board while correcting warp of the board and crushing the bump with a pressure force of not smaller than 20 gf per bump applied to the electronic component against the circuit board with heating by means of the tool, so that the electrode of the electronic component is electrically connected with the electrode of the circuit board.

According to a 12th aspect of the present invention, there is provided an electronic component mounting method as defined in any one of the 10th through 11th aspects, wherein

the device for forming the gold ball has the capillary, which has a tip shape provided with no flat portion to be brought in contact with the gold ball and of which a chamfer angle is not greater than 100° , and the gold bump that has an approximately conically shaped tip is formed on the electrode of the electronic component by the capillary.

According to a 13th aspect of the present invention, there is provided an electronic component mounting apparatus comprising: